

# **CDC Influenza Division Key Points**

January 19, 2018

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## **Summary Key Points**

- Seasonal influenza activity in the United States increased again in this week's FluView report.
- Forty-nine states continue to report widespread geographic activity this week. All U.S. states except Hawaii continue to report widespread influenza activity (Hawaii is local).
- The proportion of people seeing their health care provider for influenza-like-illness (ILI) increased slightly from last week's report (from 5.8% to 6.3%); the number of states experiencing high ILI activity increased from 26 plus New York City to 32 states plus New York City and Puerto Rico.
- These flu activity indicators are notable for the sheer volume and intensity of flu that is occurring in most of the country at the same time.
- The timing and rate of increase this season was similar to what was seen during the 2012-2013 and 2014-2015 seasons, but ILI is now higher than it was at the peak of those two seasons (6.3% versus 6%).
- This is the highest ILI percentage recorded during a regular flu season since 2003-2004. (During the 2009 pandemic, ILI peaked at 7.6%.)
- It's difficult to say how severe this season will be, but at this time hospitalization rates now are higher than what was reported during the same week in 2012-2013, but lower than what was reported during the same week in 2014-2015. In both the 2012-2013 and 2014-2015 seasons, H3N2 viruses predominated.
- The current unadjusted overall hospitalization rate is 31.5 per 100,000.
- During 2012-2013, the crude unadjusted hospitalization rate reported during week 2 for all ages was 18.8 per 100,000 people. (The hospitalization rate for people 65 and older remains highest at 136.5 per 100,000 people for the current 2017-2018 season.)
- During 2014-2015, the crude unadjusted hospitalization rate reported during week 2 for all ages was 36.3 per 100,000 people. (The hospitalization rate reported during week 2 for those ≥65 during 2014-2015 was 176.1 per 100,000.)

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- The proportion of deaths attributed to pneumonia and influenza is now above the epidemic threshold, which means that more deaths are occurring due to pneumonia and influenza than would be expected at this time.
- Another 10 flu-related pediatric deaths were reported this week, bringing the total number of flu-related pediatric deaths reported to CDC so far to 30.
- This is the 8th week that ILI has been at or above the national baseline.
- By this measure, the past five seasons have averaged 16 weeks, with the longest season lasting 20 weeks.
- During the 2012-2013 and 2014-2015 seasons, flu activity peaked during week 52 at 6.0% ILI.
- During 2012-2013, ILI remained elevated for 11 weeks after it peaked during week 52 and for 13 weeks after it peaked during 2014-2015.
- It's likely there will be significant flu activity for many weeks to come.
- So far, influenza A(H3N2) viruses have been most common this season.
- H3N2-predominant seasons have been associated with more severe illness especially among people older than 65 years and children.
- Vaccine effectiveness (VE) against H3N2 viruses in the past has been around 30%, whereas effectiveness against H1N1 viruses has been about 60% and effectiveness against influenza B viruses has been around 50%.
- The relatively lower vaccine effectiveness seen against H3N2 viruses may, in part, be caused by egg-adapted changes introduced when H3N2 viruses are optimized for growth in eggs, which is required for the egg-based production used to produce most U.S. flu vaccines.
- Flu is difficult to predict. It's not possible to say in advance precisely when the 2017-2018 flu season will peak or end, how severe it will be, or what viruses will circulate over the course of the flu season.
- Recent news reports have highlighted known limitations of the accuracy of rapid flu tests.
- Influenza rapid tests (RIDTs) are important for diagnosis and treatment and are widely used by clinicians, but how well they work can vary dramatically based on a number of factors.
- This variability highlights the importance of clinician education on the use and interpretation of RIDTs, as well as the need to consistently evaluate the performance of RIDTs and to promote development of better RIDTs.
- Clinicians and laboratorians should be aware of the limitations of RIDTs and use them appropriately for diagnostic, treatment, and infection control decisions in clinical settings.

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- There are measures clinicians and laboratorians can take to improve detection of influenza using RIDTs, including: collecting specimens within 24-72 hours in the course of illness; ensuring that the appropriate type and highest quality of respiratory specimen is collected; and using the current local prevalence of influenza activity to raise or lower the suspicion of influenza and to assess the benefit of testing.
- For more information, see CDC's influenza rapid test guidance for clinicians at [http://www.cdc.gov/flu/professionals/diagnosis/clinician\\_guidance\\_ridt.htm](http://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm).
- The [Centers for Disease Control and Prevention \(CDC\)](#) recommends [annual flu vaccination](#) for everyone 6 months and older as soon as possible.
- It's not too late to get vaccinated.
- As long as flu viruses are circulating, vaccination should continue throughout the flu season, even in January or later.
- There are many reasons to get a flu vaccine.
  1. While flu vaccine can vary in how well it works, it is the best way to prevent flu illness and serious flu complications, including those that can result in hospitalization.
  2. Even with vaccine effectiveness in the range of 30 to 60 percent, flu vaccination prevents millions of illnesses and tens of thousands of flu-related hospitalizations each year.
  3. A QA explaining why recent reports of 10 percent flu vaccine effectiveness in Australia may not apply to the U.S. this season has been posted on the CDC website at <https://www.cdc.gov/flu/about/season/flu-season-2017-2018.htm#effectiveness>.
  4. We cannot know which viruses will circulate over the season and which virus will predominate. Flu vaccine protects against three or four different flu viruses, depending on which vaccine you get.
  5. A [2017 study](#) was the first of its kind to show that [flu vaccination can significantly reduce a child's risk of dying from influenza](#).
  6. Getting vaccinated yourself protects people around you, including those who are more vulnerable to serious flu illness, like babies and young children, older people, and people with certain chronic health conditions.
  7. While flu vaccine is not perfect and some people who get vaccinated may still get flu, there is some data to suggest that flu vaccination may make illness milder.
- Manufacturers report having shipped more than 152.1 million doses of flu vaccine as of January 12, 2018.

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- The total projected supply of vaccine in the United States this season is between 151 million and 166 million doses of flu vaccine. About 119 million doses will be quadrivalent vaccine.
- Go to <https://vaccinefinder.org> or [www.cdc.gov/flu](http://www.cdc.gov/flu) to find a location near you where you can get vaccinated.
- While flu vaccine is the best way to prevent flu, influenza antiviral drugs are a second line of defense that can be used to treat flu illness.
- Most people who are otherwise healthy and get the flu do not need to be treated with antiviral drugs, but some people may be treated with antiviral drugs by their doctor.
- CDC recommends that people who are very sick or people who are sick who are at high risk of serious flu complications be treated early with flu antiviral drugs.

## **Communications Activities**

- On December 27, 2017, CDC issued a Health Advisory (<https://emergency.cdc.gov/han/han00409.asp>) through the Health Alert Network, providing notice about 1) increased influenza A(H3N2) activity and its clinical implications, 2) a summary of influenza antiviral drug treatment recommendations, 3) an update about approved treatment drugs and supply this season, and 4) background information for patients about influenza treatment.
- On January 12, 2018, a telebriefing on the current season was held. The transcript for this is available at <https://www.cdc.gov/media/releases/2018/t0112-widespread-flu-activity.html>.
- On Tuesday January 16, 2017, CDC held a Public Health Grand Rounds on the current influenza season. Video of this session will be available at <https://www.cdc.gov/cdcgrandrounds/archives/2018/January2018.htm>.

## **Antiviral Supply Update**

- CDC is in regular contact with influenza antiviral manufacturers regarding supply and other issues.
- While the total reported national supply of influenza antiviral drugs should be sufficient to meet even high seasonal demand, some manufacturers are reporting delays in filling orders and CDC is aware of spot shortages of antiviral drugs in some places experiencing high influenza activity.
- CDC is working with manufacturers to address any existing gaps in the market.
- Additionally:
  - Pharmacies and others attempting to make bulk purchases of influenza antiviral drugs may need to call more than one distributor or manufacturer to locate

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medications available for purchase in the short term. CDC has updated its antiviral drug supply web page with manufacturer information for inquiries related to antiviral purchases/availability.

- Individual patients seeking to fill an influenza antiviral prescription may want to call ahead to make sure their pharmacy has product on the shelf to fill their prescription. It may be necessary to call more than one pharmacy to locate these medications.
- Antiviral drugs work better the earlier you begin taking them so prompt action is important.
- For people who have flu and are at high risk of serious flu complications, treatment with an antiviral drug can mean the difference between having a milder illness and having a very serious illness that could result in a hospital stay.

### **Influenza Treatment: Antiviral Medications**

- Antiviral drugs are prescription medicines (pills, liquid or an inhaled powder) and are not available over the counter.
- Influenza antiviral drugs are the only drugs approved to treat influenza infection.
- Antiviral drugs are different from antibiotics. Antiviral drugs fight viruses (like flu viruses) in your body; antibiotics fight infections in your body that are caused by bacteria.
- Antiviral drugs can make flu illness milder and shorten the time you are sick.
- There also are data showing that antiviral drugs may prevent serious flu complications such as preventing pneumonia and hospitalizations in outpatients, and reducing mortality and length of stay in hospitalized patients.
  - For example, in 2015, a CDC study found that early treatment of flu-hospitalized people 65 and older with flu antiviral medications cut the duration of their hospital stay and reduced their risk of needing extended care after discharge.
  - This study entitled “Impact of Prompt Influenza Antiviral Treatment on Extended Care Needs After Influenza Hospitalization Among Community-Dwelling Older Adults” by Sandra Chaves et al. is available from the Clinical Infectious Diseases journal website at <http://cid.oxfordjournals.org/content/early/2015/09/01/cid.civ733> .
- Antiviral drugs work best when started within two days of symptoms first appearing, but there are data to suggest they can still be beneficial in very ill patients even up to five days after getting sick. This would be especially important for a person who is at high risk of serious flu complications and who is very sick.

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- Three FDA-approved influenza antiviral drugs are recommended for use in the United States during the 2017-2018 influenza season: oseltamivir (Tamiflu® and generic formulations), zanamivir (Relenza®), and peramivir (Rapivab®). Generic formulations of oseltamivir became available commercially last season.
- Antiviral drugs are not a substitute for getting a flu vaccine. The flu vaccine is the best way modern medicine currently has to prevent this potentially serious disease.
- See [Influenza Antiviral Medications: Summary for Clinicians](#) on the CDC web site for additional information.

## **Laboratory Data**

- CDC characterizes influenza viruses through one or more tests, including genomic sequencing, hemagglutination inhibition (HI) and/or neutralization assays.
- These data are used to compare how similar currently circulating influenza viruses are to recommended vaccine reference viruses.
- These data can give a general indication of how well flu vaccines might work.
- Antigenic similarity is evaluated by comparing cell-propagated circulating viruses with cell-propagated reference viruses.
- Laboratory data on viruses collected in the United States from October 1, 2017, through January 10, 2018 indicate that most (98.4%) of circulating H3N2 influenza viruses remain similar to the cell-grown reference viruses that represent vaccine viruses recommended for use in the production of 2017-2018 U.S. influenza vaccines.
- **No significant antigenic drift has occurred among circulating wild-type influenza viruses at this time.**
  1. Even among H3N2 viruses, while there is considerable genetic diversity, no significant antigenic drift has been observed.
- However, a smaller percentage (84.6%) of circulating H3N2 viruses collected and tested from Oct 1, 2017 to January 10, 2018, are similar to the egg-grown reference virus representing the virus recommended for use in egg-based Northern Hemisphere vaccines.
- These **differences are likely a result of egg-adapted changes** introduced when the H3N2 virus was grown in eggs.
- Compared with influenza A(H1N1) and B viruses, egg-adapted changes in H3N2 viruses are more complex and likely to have antigenic implications that can make these H3N2 viruses less similar to circulating H3N2 viruses.

## **Vaccine Effectiveness**

- The absence of antigenic drift suggests that vaccination with Northern Hemisphere influenza vaccines should offer protection similar to what has been seen during

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other seasons when cell culture propagated reference vaccine viruses and most circulating viruses were similar.

- While vaccine effectiveness can vary, a study that pooled influenza vaccine effectiveness estimates from 2007 to 2015 by virus type and subtype found that:
  - Multi-year pooled vaccine effectiveness against influenza B viruses was 54%;
  - Multi-year pooled vaccine effectiveness against influenza A(H1N1)pdm09 viruses was 61%;
  - Multi-year pooled vaccine effectiveness against H3N2 viruses was 33%.
    - Belongia EA, Simpson, MD, King JF, Sundaran ME, Kelley NS, Osterholm MT, McLean HQ. [Variable influenza vaccine effectiveness by subtype: a systematic review and meta-analysis of test-negative design studies](#). Lancet Infect Dis. 2016; 16(8):942-51.
- It is important to note that during seasons when the majority of circulating viruses are very different from a vaccine virus, vaccine effectiveness can be further reduced.
- Two types of genetic changes can impact the similarity between a vaccine virus and circulating seasonal viruses.
  1. Influenza viruses constantly undergo small genetic changes. These genetic changes can sometimes result in antigenic changes. This is called **“antigenic drift.”** (Circulating viruses “drift” away from what is included in the vaccine.)
    - For more information on antigenic changes, see CDC’s Antigenic Characterization page at <https://www.cdc.gov/flu/professionals/laboratory/antigenic.htm>.
  2. Another type of change that can happen is that genetic changes occur when influenza viruses are grown in eggs, which is required for most U.S. flu vaccines.
    - These genetic changes (called **“egg-adapted”** changes) may have antigenic (or immunogenic) implications that may impact how well the vaccine works.
    - Egg-adapted changes that are associated with antigenic changes occur more often in H3N2 viruses.
- The lower vaccine effectiveness seen against H3N2 viruses during seasons when no antigenic drift has occurred may, in part, be caused by egg-adapted changes.
- Most U.S. flu vaccines are produced using egg-based technology.
- There are two flu vaccines in the United States that are not grown in eggs: recombinant influenza vaccine ([Flublok](#)) and cell-grown influenza vaccine ([Flucelvax](#)).

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- Recombinant vaccine is made by growing a certain protein from a naturally occurring ("wild type") recommended vaccine virus in insect cells.
- This season, Flucelvax is being made using a cell-grown H3N2 candidate vaccine virus for the first time.
- Previously Flucelvax had been produced using cell-based technology but with candidate vaccine viruses isolated in eggs per FDA regulatory requirements.
- On August 31, 2016, FDA approved the use of cell-isolated candidate vaccine viruses in the production of Flucelvax, the only licensed cell-based flu vaccine in the United States.
- For recombinant and cell-grown vaccines, the H3N2 components are genetically more similar to circulating H3N2 viruses than the egg-adapted viruses recommended for egg-based manufacturing.
- At this time there is insufficient data to determine whether cell-based or recombinant vaccine are more effective than egg-based vaccine.
- Additional data is needed (including vaccine effectiveness data) before policy decisions on this topic could be considered.

## **Influenza Vaccine Effectiveness in Australia during 2017 Season**

- The 2017 Southern Hemisphere influenza vaccine contained the same vaccine components as the Northern Hemisphere 2017-18 formulation.
- U.S. flu vaccine during 2016-17 also contained the same H3N2 component as was used in Australia during their 2017 season (A/Hong Kong).
- Data from influenza surveillance systems in Australia from May and September 2017 were used to estimate vaccine effectiveness (VE) of the 2017 Southern Hemisphere influenza vaccine at preventing medically attended illness in that country.
  - Overall, Australia estimated influenza vaccine effectiveness was 33% (with a 95% confidence interval [CI] of 17% to 46%) against all influenza viruses last season.
  - Australia estimated that VE against influenza A(H3N2) viruses was 10% (with a CI -16% to 31%) while VE against influenza B viruses was estimated to be 57% (CI 41% to 69%).
- In the United States last season (2016-2017), overall vaccine effectiveness of 39% (CI 32% to 46%) was measured.
  - VE against influenza A(H3N2) viruses was 32% (CI 23% to 41%).



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- VE against influenza B viruses of 52% (CI 43% to 61%) was seen during 2016-17 in the United States.
- The VE measured in Australia may not be predictive of what will happen in the United States in the 2017-18 season.
- Differences between VE estimates from the United States compared with Australia may have been due to differences in studies to measure VE, such as smaller sample size.
- Looking at VE against H3N2 in the United States last season is likely a more appropriate comparison/predictor of what may happen here in the United States.
- VE in the 30 percent range also is what has been observed previously against H3N2 viruses.
- A study in Lancet Infectious Diseases that looked at a number of VE estimates from 2004-2015 found pooled VE of 33% (CI = 26%–39%) against H3N2 viruses, compared with 61% (CI = 57%–65%) against H1N1 and 54% (CI = 46%–61%) against influenza B viruses.  
([http://www.thelancet.com/pdfs/journals/laninf/PIIS1473-3099\(16\)00129-8.pdf](http://www.thelancet.com/pdfs/journals/laninf/PIIS1473-3099(16)00129-8.pdf))
- A QA on this topic has been posted on the CDC website at  
<https://www.cdc.gov/flu/about/season/flu-season-2017-2018.htm#effectiveness>.
  1. While flu vaccine is not perfect, and some people who get vaccinated may still get flu, there is some data to suggest that flu vaccination may make illness milder.
  2. Now is a good time to get vaccinated.

Go to <https://vaccinefinder.org> or [www.cdc.gov/flu](http://www.cdc.gov/flu) to find a location near you where you can get vaccinated.

### **FluView Activity Update (Key Flu Indicators)**

Influenza activity increased again in this week's FluView report. All U.S. states but Hawaii continue to report widespread flu activity and the number of states experiencing "high" influenza activity increased from 26 plus New York City to 32 states plus New York City and Puerto Rico. Indicators used to track influenza-like-illness (ILI) activity are similar to what was seen during the peak of the 2014-2015 season, a season of high severity. The overall hospitalization rate is high also, but still lower than the overall hospitalization rate reported during the same week of the 2014-2015 season. CDC also is reporting an additional 10 flu-related pediatric deaths, bringing the total number of flu-related pediatric deaths reported this season to 30 so far. Flu activity is likely to continue for several more weeks.

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CDC continues to recommend influenza vaccination for all persons 6 months of age and older as flu viruses are likely to continue circulating for weeks. In addition, in the context of widespread influenza activity, CDC is reminding clinicians and the public about the importance of antiviral medications for treatment of influenza in people who are severely ill and people who are at high risk of serious flu complications. Below is a summary of the key flu indicators for the week ending January 13, 2018 (week 2):

- **Influenza-like Illness Surveillance:** For the week ending January 13, the proportion of people seeing their [health care provider](#) for influenza-like illness (ILI) was 6.3%, which is above the national baseline of 2.2% and is the highest ILI percentage recorded since the 2003-2004 season. All 10 regions reported a proportion of outpatient visits for ILI at or above their region-specific baseline levels. ILI has been at or above the national baseline for eight weeks so far this season. Over the past five seasons, ILI has remained at or above baseline for 16 weeks on average.
  - Additional ILINet data, including national, regional, and select state-level data for the current and previous seasons, can be found at <http://gis.cdc.gov/grasp/fluview/fluportaldashboard.html>.
- **Influenza-like Illness State Activity Indicator Map:** New York City, Puerto Rico and 32 states experienced high ILI activity (Alabama, Arizona, Arkansas, California, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wisconsin, and Wyoming). Nine states (Alaska, Colorado, Idaho, Iowa, Massachusetts, Minnesota, North Dakota, Pennsylvania, and Rhode Island) experienced moderate ILI activity. The District of Columbia and six states (Connecticut, Michigan, New Hampshire, Utah, Vermont, and Washington) experienced low ILI activity. Three states experienced minimal ILI activity (Delaware, Maine, and Montana).
  - Additional data, including data for previous seasons, can be found at <https://gis.cdc.gov/grasp/fluview/main.html>
- **Geographic Spread of Influenza Viruses:** Widespread influenza activity was reported by Puerto Rico and 49 states (Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts,

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Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming). Regional influenza activity was reported by Guam. Local influenza activity was reported by the District of Columbia and one state (Hawaii). Sporadic activity was reported by the U.S. Virgin Islands. Geographic spread data show how many areas within a state or territory are seeing flu activity.

- Additional data are available at: <https://gis.cdc.gov/grasp/fluview/FluView8.html>.
- **Flu-Associated Hospitalizations:** Since October 1, 2017, 8,990 laboratory-confirmed influenza-associated hospitalizations have been reported through the Influenza Hospitalization Network (FluSurv-NET), a population-based surveillance network for laboratory-confirmed influenza-associated hospitalizations. This translates to a cumulative overall rate of 31.5 hospitalizations per 100,000 people in the United States.
  - The highest hospitalization rates are among people 65 years and older (136.5 per 100,000), followed by adults aged 50-64 years (33.2 per 100,000), and children younger than 5 years (22.8 per 100,000). During most seasons, children younger than 5 years and adults 65 years and older have the highest hospitalization rates.
  - During 2014-2015, hospitalization rates reported during week 2 for all ages were 36.3 per 100,000. During that same week, hospitalization rates for people 65 years and older were 176.1 per 100,000. Hospitalization rates for children younger than 5 years were 34.5 per 100,000.
  - Additional data, including hospitalization rates during other influenza seasons, can be found at <http://gis.cdc.gov/GRASP/Fluview/FluHospRates.html> and <http://gis.cdc.gov/grasp/fluview/FluHospChars.html>.
- **Mortality Surveillance:**
  - The [proportion of deaths](#) attributed to pneumonia and influenza (P&I) was 8.2% for the week ending December 30, 2017 (week 52). This percentage is above the epidemic threshold of 7.1% for week 52 in the National Center for Health Statistics (NCHS) Mortality Surveillance System.
  - Region and state-specific data are available at <https://gis.cdc.gov/grasp/fluview/mortality.html>.
- **Laboratory Data:**

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- Nationally, the percentage of [respiratory specimens](#) testing positive for influenza viruses in clinical laboratories during the week ending January 13 was 25.6%.
- Regionally, the three week average percent of specimens testing positive for influenza in clinical laboratories ranged from 16.9% to 30.3%.
- During the week ending January 13, of the 12,894 (25.6%) influenza-positive tests reported to CDC by clinical laboratories, 10,622 (82.4%) were influenza A viruses and 2,272 (17.6%) were influenza B viruses.
- The most frequently identified influenza virus subtype reported by public health laboratories was influenza A(H3N2) virus.
- During the week ending January 13, 1,319 (87.5%) of the 1,507 influenza-positive tests reported to CDC by public health laboratories were influenza A viruses and 188 (12.5%) were influenza B viruses. Of the 1,229 influenza A viruses that were subtyped, 1,111 (90.4%) were H3N2 viruses and 118 (9.6%) were (H1N1)pdm09 viruses.
- The majority of the influenza viruses collected from the United States during October 1, 2017 through January 13, 2018 were characterized antigenically and genetically as being similar to the cell-grown reference viruses representing the 2017–18 Northern Hemisphere influenza vaccine viruses.
- Since October 1, 2017, CDC has tested 168 influenza A(H1N1)pdm09, 587 influenza A(H3N2), and 209 influenza B viruses for resistance to antiviral medications (i.e. oseltamivir, zanamivir, or peramivir). While the majority of the tested viruses showed susceptibility to the antiviral drugs, two (1.2%) H1N1pdm09 viruses were resistant to both oseltamivir and peramivir, but was sensitive to zanamivir.

[FluView \(http://www.cdc.gov/flu/weekly/fluactivitysurv.htm\)](http://www.cdc.gov/flu/weekly/fluactivitysurv.htm) is available – and past issues are [archived \(http://www.cdc.gov/flu/weekly/pastreports.htm\)](http://www.cdc.gov/flu/weekly/pastreports.htm) – on the CDC website.

Note: Delays in reporting may mean that data changes over time. The most up to date data for all weeks during the 2017-2018 season can be found on the current [FluView\(http://www.cdc.gov/flu/weekly/\)](http://www.cdc.gov/flu/weekly/) and FluView Interactive (<https://www.cdc.gov/flu/weekly/fluviewinteractive.htm>).

### **▪ Pediatric Deaths**

- Ten influenza-associated pediatric deaths were reported to CDC during week 2.
  - Four deaths were associated with an influenza A(H1N1)pdm09 virus and occurred during weeks 51, 1 and 2 (the weeks ending December 23, 2017, January 6, 2018, and January 13, 2018, respectively). Three deaths were associated with an influenza A virus for which no subtyping was performed and occurred during weeks 44, 46, and 52 (the weeks ending November 4, 2017, November 18, 2017, and December 30, 2017,

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respectively). Three deaths were associated with an influenza B virus and occurred during weeks 52, 1, and 2 (the weeks ending December 30, 2017, January 6, 2018, and January 13, 2018, respectively).

- A total of 30 influenza-associated pediatric deaths for the 2017-2018 season have been reported to CDC.
- Additional information on pediatric deaths is available on FluView Interactive at: <https://gis.cdc.gov/GRASP/Fluview/PedFluDeath.html>.